

## ABSTRACT

An optical switch array assembly for DNA probe light synthesis and hybridized DNA probe light detection is composed of a silicon substrate, an optical switch array disposed in the substrate, a glass plate mounted on the top of the substrate, and a DNA probe array disposed on the surface of the glass plate. The substrate also contains a driving circuit for forcing each optical switch on and off and an addressing circuit for locating each optical switch. A plurality of holes is disposed in the substrate so that each hole is aligned with an optical switch and guides a light beam to a corresponding optical switch.